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HENRY GEORGE LYONS

1864—1944

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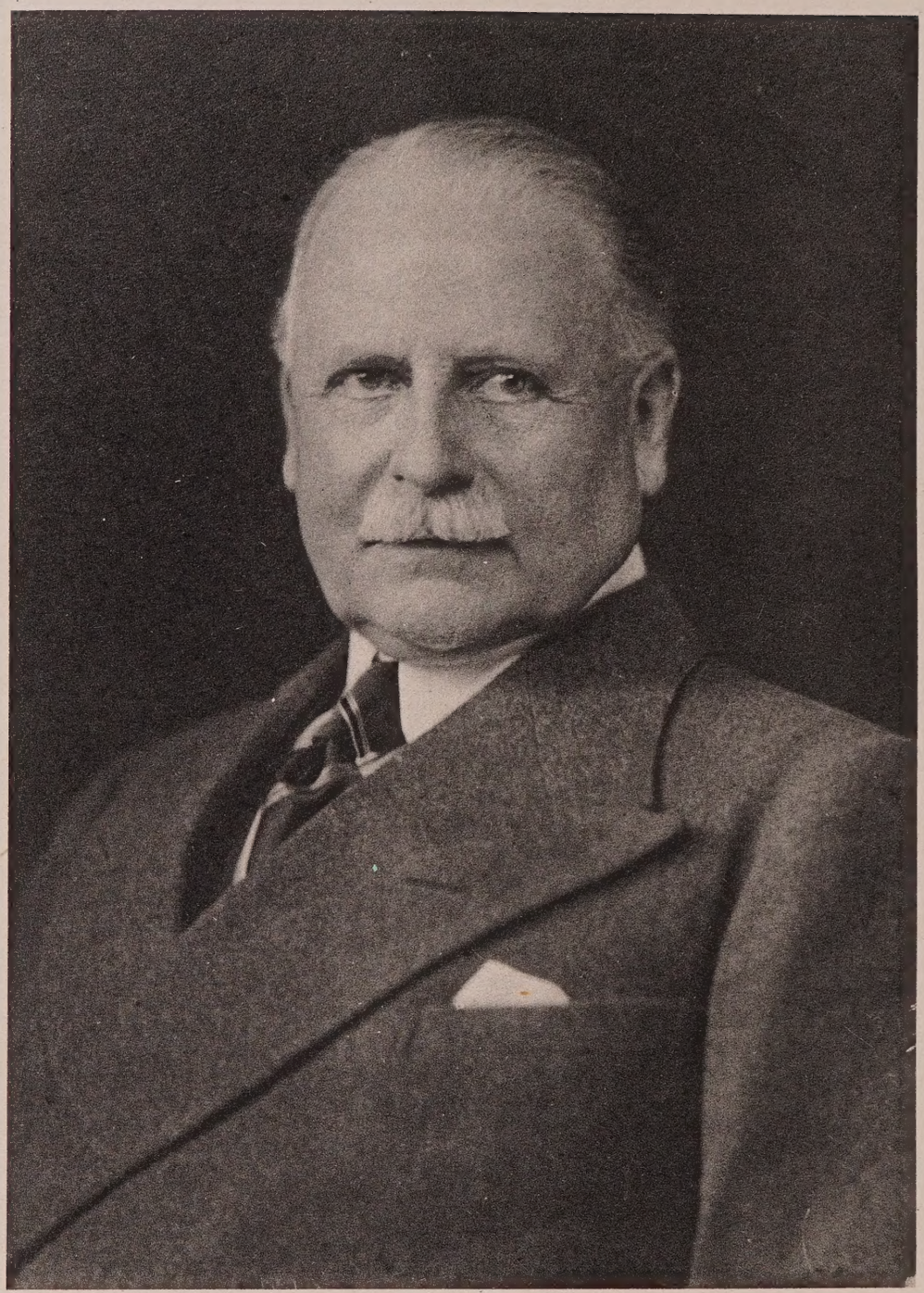

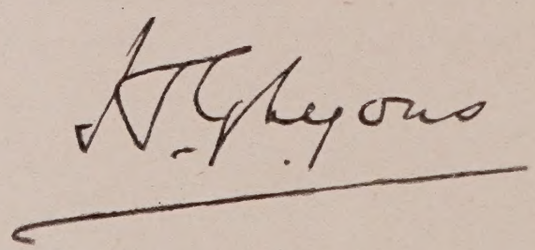

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HENRY GEORGE LYONS

1864–1944

HENRY GEORGE LYONS, born on 11 October 1864, came of a military family. His father, Thomas Casey Lyons, who had served in the 16th [the Bedforshire and Hertfordshire Regt.] and [the Lancashire Fusiliers] 20th Foot and in the 87th Foot [the Royal Irish Fusiliers], retired in 1896 with the rank of General, having been Governor of Bermuda. His uncle, Major James Lyons, R.A., who held a post at the Royal Arsenal, Woolwich, is said to have had definite scientific interests and to have been associated therein with Sir Andrew Noble. The father, T. C. Lyons, was employed on the staff of the Army for most of his life, and lived with his family successively at Galway, Preston and Dublin during our subject's school days. Henry Lyons was at a preparatory school, Aldin House at Slough, from 1874–1878, and then gained an entrance scholarship for officers' sons at Wellington College, where he stayed till 1882. He attributed his first interest in science to an acquaintance made during holidays in 1879–1880 with a neighbour at his Dublin home, who was then being 'crammed' for Sandhurst and taking Geology as a subject. The two boys collected fossils from blocks of Carboniferous Limestone lying on the canal wharves, and, with his interest thus aroused, young Lyons spent all his spare time at Wellington in reading Lyell's *Elements of Geology* and then the same author's *Principles*, being encouraged in these voluntary studies by the science master, Rev. B. A. Irving, F.G.S. For his age he must, indeed, have shown unusual aptitude as well as enthusiasm, for Mr Irving introduced him to well-known geologists of those days, R. Etheridge and W. Huddleston (both F.R.S.), by whom he was proposed for the Geological Society, and elected in 1882, when he was not yet nineteen years of age.

In December 1881 Lyons passed for a Cadetship at the Royal Military Academy, Woolwich, where he entered in March 1882, passing out after two years, with a Commission as Lieutenant, R.E., for a further two years' course at Chatham in military engineering. He had continued to work at Geology in his spare time and, being ordered to Gibraltar in January 1886, took the opportunity to explore many of the little known caves there and contributed some of his finds to the British Museum. After being posted to a telegraph battalion of the R.E. at Aldershot from 1886–1889, he was sent back to Chatham, to complete certain courses which had been interrupted when he was sent to Gibraltar three years earlier. It would appear that, at this early stage of his career, his interests in Geology and his capacity for giving them practical application had already brought him to notice, since there is a record of his being called upon, while at Aldershot, to advise on a water supply from the Bagshot

Sand; and it may be supposed that this resulted in his publication of his first scientific paper, on 'London Clay and Bagshot Beds' (*Q. J. Geol. Soc.* 1887) at the age of twenty-three years.

The first of the main phases of Lyons's career began in January 1890, when he was posted to a Company of Royal Engineers at Cairo. Here, again, we find him using his spare time for a study of the Geology of the country accessible to him, and employing periods of short leave in journeys to Suez, to the Eastern Desert, to the Coptic Monasteries, and to the Baharia Oasis in the Western Desert. In October 1891 he was transferred to the Egyptian Army and posted as Engineer Officer on the Staff at Wady Halfa, where he continued to use all the time he could spare from formal duties for further studies in Geology and Egyptology, to which his interests had now extended.

In October 1892 Lyons was ordered to Cairo to become Assistant Quarter Master General on Sir H. H. Kitchener's staff, when the latter became Sirdar. Being sent on patrol in the Western Desert to the oases of Khanga and Dakhla and later, in 1895, to the Nubian Desert, to inspect the caravan routes and the water supplies available, Lyons continued to use the opportunities afforded by such journeys for scientific observations, being provided for some of these with instruments lent by the Royal Society on the recommendation of Sir Arthur W. Rücker. Between 1895 and 1896 he was sent to Aswan to examine the stability of the temples on the river islet of Philae, above the first cataract of the Nile. The work was needed in view of the Barrage scheme then about to be undertaken, which would cause the temples to be submerged, except for the few months in the year when the water would be allowed to flow freely through the sluices of the projected Aswan dam. As the result of Lyons's survey and report, the island and the temples were cleared of much debris of native building, remains of Christian churches were disclosed, and the walls and foundations of the stone structures were all repaired and strengthened before the dam was completed; and although the temples are now submerged except for the months from July to October, it is said that the process is actually beneficial to the stonework, in that it regularly removes disintegrating salts and incrustations. It seems clear that this, the first of Lyons's undertakings to attract some measure of public notice, was done with the quiet efficiency which, in later years, those who were associated with him in any of his enterprises came to take for granted. His Report to the Public Works Ministry on *Islands and Temples of Philae* brought him a reputation among archaeologists, as well as among engineers and administrators.

In July 1896, still holding his active rank in the R.E., Lyons was transferred from the Egyptian Army to the Ministry of Public Works, to organize a Geological Survey of Egypt, and was thus given, in the course of his military duty, a first full-time opportunity to carry out and to plan research in the department of science which had so early caught his interest and so long occupied the activities of his leisure, though he had had no opportunity of academic or other formal training in it. The new appointment practically coincided with another event, which was to have a central importance in the

rest of Lyons's life. In London on 6 July 1896 he married Miss Helen Julia Hardwick, elder daughter of P. H. Hardwick, Architect, and granddaughter of Philip Hardwick, F.R.S. (1831), who had received the Gold Medal of the R.I.B.A. Nobody who has since known them together needs to be told that the marriage was to bring them great happiness, with its unusually close comradeship and intimate sharing of experience. We can have no doubt that Lyons, returning with his wife to Egypt, threw himself with added enthusiasm and efficiency into the congenial work of his new appointment. He was not long to retain it, however, in that simple form. The report of his good work at Philae, and in starting the Geological Survey, had not escaped the notice of a great administrator, Lord Cromer, then at the height of his struggle to establish the roots of a sound economy in Egypt. He saw a man of the qualities which he required, and was prepared to wait for him if necessary; so to Lyons came the enquiry, in July 1898, whether, when the Geological Survey was completed, he would undertake a Cadastral Survey of Egypt. Lyons saw that to handle two problems of such magnitude in succession would take a large part of his active life, and he was doubtful about becoming responsible for both on any plan, if he continued to serve as a British officer seconded for special duties. He had already missed opportunities of active service in the campaign which, even then, was moving to its finale two months later at Omdurman. It was a crisis in his career, requiring a clear choice. If he remained in the army he must seek the chances of active service which the years immediately ahead would present; if, on the other hand, he decided to accept further employment in research and scientific administration, he must now make up his mind to adopt these as his life's work. He replied, accordingly, that the Geological Survey would not be completed for many years, but that, with adequate staff and facilities, its work could be organized with that of the Revenue Survey and the Drawing Office of the Department of Public Works, as a combined Survey Department; if the Directorship of such a department, with its extended opportunity, were offered to him, he would retire from the British Army and take up permanent service with the Egyptian Government. The proposal was accepted, Lyons retired from the army with the rank of Captain, and entered forthwith upon the duties which were to fill the next eleven years with work of high distinction. His tenure of this office was to bring him well-deserved recognition among men of science, as one who had contributed by his personal effort, and also by his remarkable gifts for organization and leadership, to the advancement of knowledge in an unusually wide range of the natural sciences.

Of the two main enterprises for which Lyons was thus made responsible, the Geological Survey, of which he had already had control for two years, was especially needed to determine the structure and the mineral potentialities of Egypt's desert regions, covering 98 per cent of the country and equal in extent to France and Germany combined. Lyons's earlier use of short periods of leave for geological and allied explorations in the deserts has already been mentioned, and it is clear that this aspect of what had become his official responsibility was closely aligned with his natural inclinations. We shall see, however, that his

scientific enterprise soon extended far beyond any formal definitions of the duties of his post. His other main duty, the Cadastral and Topographical Survey, had been recognized, for twenty years before Lyons undertook it, as vital to the economy of the close and ever-shifting chequer-board of Egyptian agriculture, but had baffled repeated efforts to solve its inherent difficulties. As was written some seven years after Lyons took up his new appointment:

> It will readily be understood . . . that some new problems in surveying are likely to arise, when the land is cut into strips a mile or two long and a few feet wide, the boundary marks of which only exist permanently at the ends, intermediate ones being annually obliterated by the flood and annually reinstated in a manner little short of marvellous by common consent. Again, in reconciling the survey with title deeds, it does not facilitate matters to have north and south reckoned sometimes by the sun and sometimes by the actual course of the devious Nile.

One seems almost to hear the appreciative chuckle with which Lyons would explain these subtle attractions of his job to the Correspondent of *The Times* (28 August 1905), from whose article the above quotation is made. For he was the very embodiment of the creative spirit which finds in difficulties a challenge to resource and enterprise, and not an excuse for inertia. The article goes on to testify that 'by hard and steady work order is gradually being evolved out of something nearly resembling chaos'. This national survey, indeed, would appear to have been at that time already within a year of its triumphant emergence from these seemingly fantastic complications; for it is recorded, on the best authority, that Lyons had rapidly built up an organization which completed the initial task in eight years, as outlined in his *Cadastral Survey of Egypt* (Cairo, 1907), and which has maintained and extended the survey since that first achievement.

Meanwhile the use which Lyons was making of his opportunities was becoming known in scientific circles widely beyond the scope of the formal duties, even of his multiple department. He had been quick to recognize the special obligations and opportunities of his position in Egypt, in relation to a whole range of sciences dealing with inanimate nature and its phenomena—Geology, Geography, Geodesy, Geophysics, Hydrology, Meteorology, Astronomy. The conditions of human life and economy in Egypt, with their intimate dependence on the annual flooding of the Nile, obviously presented special needs for the expert and enterprising application of these sciences and their methods, while they offered opportunities in many ways unique for further advancement of knowledge over this wide range. So we find Lyons originating or developing the services of an Observatory and a Meteorological Office, and obtaining a grant from the Egyptian Government to his department of £5,000 per annum, for 'scientific work from which an immediate, utilitarian return is not to be expected'. He proposed, as a first application of this grant, to undertake an accurate, vertical, geodetic survey of the whole country. He inaugurated also the systematic collection of all available meteorological data for a more accurate prediction of the extent of the Nile's annual flood, though the most significant of all, from the source of the Blue Nile in Abyssinia, were non-existent. 'Five years ago', he

was able to report, in 1905 (*The Rains of the Nile Basin in* 1904, Cairo, 1905), 'there were not more than six or eight places in the Nile Basin where the rainfall was being measured regularly, while to-day there are more than forty, of which thirty-two lie to the south of Berber (lat. 18° N.)'. There are probably few who recognize his initiative, in using kites to carry recording instruments to high altitudes from the observatory at Helwan; but it gave him private satisfaction, in later years, to think that he had, indeed, been an early pioneer of modern meteorological methods.

Lyons may well have regarded the year 1905 as a landmark in his career, on account of the contacts which it brought him with leading men of science of this and other countries, and the evidence which it produced of the rapidly growing recognition of his work by the scientific world. On 9 July of that year, on a visit to England, arranging for the expedition which was to visit Aswan at the end of the following month to observe a total eclipse of the sun, and for a later visit to Egypt by members of the British Association, he was at a dinner at the Athenaeum given by the Officers of the Royal Society—Huggins (President), Kempe, Larmor, Geikie and F. Darwin—with other leaders of that time in Astronomy, Geology and other branches of science and learning. 'My health was drunk after dinner—a very pleasant evening', he notes, on the first page of the condensed and selective Journal which he kept thenceforward. August found him back in Cairo, distributing copies of his note, just published by the Royal Geographical Society, on the 'Length of the Nile and Area of its Basin', and, two days later, off to Aswan to receive the British, American and Russian eclipse expeditions. Apart from being responsible, with his staff, for all the general arrangements to accommodate the parties and facilitate their work, we find him sharing the manipulation of one of the cameras of the British expedition. On 7 September, now at Innsbrück, he learns from a telegram from Professor H. H. Turner, who had led the British expedition, that five out of the six plates taken by Lyons and his partner were 'successful': 'the 6th plate', he notes, 'was evidently the one . . . partially exposed while the slide was being withdrawn'.

He had gone to Innsbrück for an International Congress of Directors of Meteorological Services, which began on 9 September. In addition to the general agreements and recommendations by the Conference, and the meteorological observations which it noted as specially appropriate to Lyons's opportunities in Egypt, he brought away a list of twenty-four items—points for study, action, or answer—which the discussions at Innsbrück had raised in his own mind. Then, back in Egypt, he prepares to receive about 180 members of the British Association, who arrive at Suez on 4 October. 'All departments of scientific interest open to B.A. Members', he notes on 7 October; 'Professor G. Darwin, Professor E. W. Brown, Dr J. Milne and Mr Bolton of 'Stanfords' came to Survey Offices, Mr Beilby and Hall to Laboratory'. Mention of the Laboratory recalls the fact that he had further extended the range of his scientific contributions to Egyptian economy by establishing an Analytical Laboratory and Assay Office, as well as a service of Weights and Measures. Then, on 6 November,

Professor (later Sir) G. H. Darwin wrote to enquire whether Lyons would allow him, with Professor H. H. Turner, to propose him for election to the Royal Society. It may surely be taken as some measure of the impression created by his scientific achievement, that the claims of an amateur Geologist, who had become head of a Survey through service in the R.E., should be put forward by the Cambridge and Oxford Professors of Astronomy. Lyons's name thus appeared in the list of candidates in January 1906, and in March, at this first presentation of the Certificate for him, he was nominated by the Council for the election on 3 May and in due course became F.R.S. He was admitted on 17 May, and on 29 May received the Honorary D.Sc. of Oxford University. Later in the year, on 11 October, his colleagues of the Survey Department in Egypt celebrated the double recognition by entertaining him to dinner at Shepheard's Hotel, Cairo.

Lyons, however, had by no means been resting on these laurels. We find him busy, on his visit to England to receive them, with the filling of vacancies on his Survey staff by interviews at Cambridge and then at Oxford, where also, on his graduation visit, he had a meeting with the Astronomer Royal and Professor Turner, to enlist their co-operation in the determination of the longitude of a chosen point in Egypt, for which he had already begun to lay plans. It was in 1906, also, that he completed and brought to publication the most important single work of his Egyptian period, his book on *The Physiography of the River Nile and its Basin*, in which he brought together all that was known of the geology, the climate and the hydrology of that region. On good authority[1] it has recently been described as still 'the most important scientific work on the Nile which has been produced up to the present time; it contains matter of the utmost importance for science and for the economy and government of Egypt'.

In 1907–1908, as Lyons's journal shows, he was busy with an almost daily variety of problems, scientific and personal, arising out of all the duties and enterprises which had now come under his efficient control—military maps of Egypt, standardization of bacteriological technique for the examination of water supplies, archaeology, difficulties with the government about the appointment of a well qualified astronomer, and so on, in an almost bewildering succession. In September 1908 he received the honorary degree of Sc.D. from Trinity College, Dublin, and in October was made a Corresponding Member of the German Meteorological Society. He had evidently begun to feel the need of relief from the burden of multiple responsibilities which he had carried so well, and to look for an opportunity of concentrating his scientific energies. He accordingly accepted, on 16 December, the offer of an appointment as University Lecturer in Geography at Glasgow, to begin in October 1909. In April 1909 he was received by the Khedive, who decorated him with the Grand Cordon of the Medjidieh Order, and later that year left Egypt, after nineteen years of varied and brilliant service, mostly in the cause of science. The next two years, in which Lyons held the Glasgow lectureship, were relatively uneventful. Apart from his formal duties he was invited to lecture to various societies on aspects

[1] Sir George C. Simpson, F.R.S., in *Nature*, **154**, 328 (1944).

of his work in Egypt, and in March 1911 the Royal Geographical Society awarded him its Victoria Research Medal, and elected him its Honorary Secretary. It may be suspected, however, that his hopes of leisure and opportunity for personal research had not been realized in his new post, for in August 1911 he put his name forward for an appointment at the Science Museum, South Kensington. He was appointed, in the following March, Assistant to the Director, at that time Sir Francis Ogilvie, and Secretary of the Advisory Council to the Museum, and began there, on 10 April 1912, what was to become the second major phase of his scientific career, and the one in connexion with which he was to be most widely known in this country.

Lyons remained Assistant to the Director of the Museum till 1914, when he became Keeper of a Department, but soon afterwards, with the outbreak of war, was recalled to the army for duty, being first employed at Chatham in connexion with recruiting for the R.E. and later as Secretary to the Council of the R.E. Institute. His main war service, however, was of a kind to give scope for the use of his experience and his special knowledge in meteorology. Already in 1913 he had been appointed a member of the Government's Meteorological Committee on the recommendation of the Royal Society, to fill the vacancy caused by the death of Sir George Darwin. He became President of the Royal Meteorological Society at the beginning of 1915. In May of that year he was transferred from Chatham to London, his services being lent by the War Office to the Meteorological Office 'in view of the importance of an adequate knowledge of the weather to naval and military operations in the Mediterranean, to which attention was called by the Admiralty'. It was soon clear, indeed, that accurate meteorological information had become one of the primary needs of successful military action, on land and in the air as well as at sea. A separate unit of the R.E. was created for meteorological service in the field, with Major Gold in command in France, Captain Wedderburn in the Eastern Mediterranean, and Lyons (now Major) as organizing Commandant in London, and representative of the War Office on the Meteorological Committee. He thus became one of the chief originators and promoters of the military development of meteorology, which is playing a part of such importance in the present war. In the following year he took over the administrative direction of the Meteorological Office, with the responsibility for dealing with all papers, so as to set Sir Napier Shaw free to meet the growing demands for his technical advice; but it was not until the Spring of 1918 that Lyons was appointed Director for the period of the war by the Meteorological Committee, Shaw becoming Scientific Adviser and Chairman of the Committee; and it was even a little later that Lyons was gazetted Commandant of the R.E. Meteorological Services, with the acting rank of Lieutenant-Colonel. This arrangement came to an end in April 1919, but he was still busy for some months with its aftermath, attending a Conference and serving on a Committee concerned with the transfer of the Meteorological Office to the Air Ministry and its amalgamation with the Air Ministry's existing Meteorological Service, and arranging the details of the staffing of this new, combined Service. He remained a member of the Meteorological Committee

on retiring from the Office, and succeeded Sir Arthur Schuster as Vice-Chairman in 1932. Towards the end of 1918, also, Lyons had made his first active contact with what was to become another of his major concerns in after years, in being one of the British delegates nominated by the Royal Society to an International Conference on International Scientific Organization, which met in London in October and reassembled in late November, after the armistice, in Paris. On the latter occasion he used the opportunity for a discussion between British and French representatives on international relations in Meteorology. Then, in 1919, he attended the meeting of the newly formed International Research Council at Brussels, and was elected Secretary-General of the International Union of Geodesy and Geophysics.

At length, in September 1919, Lyons was released from active service, being given the rank of Colonel on retirement, and returned to his duties as Keeper of the Science Museum, which the war had interrupted so soon after his appointment. In the following April Sir Francis Ogilvie retired from the Directorship and Lyons succeeded him, thus beginning the period of his full opportunity at the Museum, which was to last for thirteen years and to witness such a remarkable development of its potentialities. When his term as Director began, the Museum was already a fine collection, but meanly housed and generally ill found. As early as 1912 a Committee of which Sir Hugh Bell was chairman had reported in favour of rebuilding, and of greatly extending the size of the Museum and its educational value. It is likely that before Lyons became Director, and while he was still Secretary of the Museum's Council, plans had been under consideration which provided for substantial reorganization of the Museum as soon as the proposed rebuilding made this possible; and it may be supposed that the beginning of the present building in 1922, representing one-third of the new accommodation planned in 1912, and the completion and opening of this portion in 1928, contributed a factor of importance to what Lyons achieved. With all such allowance, however, the fact remains clear that it was under his direction that the striking transformation was carried out. As he himself maintained, a practical science museum differs from a museum of archaeology or art, in that the large majority of its exhibits are not inherently attractive or unique in their interest; they ought not to be hoarded or cherished, but regularly discarded, or replaced, as they become obsolete. He accordingly established a Board of Survey, which met twice a year to mark for rejection the items which had lost interest. He saw also that a necessary condition of the educative function, which such a museum ought to fulfil, was to make the exhibits intelligible and interesting to as wide a public as possible. Great attention was, therefore, given to the effective labelling of exhibits, to working models which the visitor himself could easily set in motion, and to serial exhibits illustrating the progress of invention and design, as well as the scientific principles involved, in new developments such as the aeroplane, the gramophone, the cinema, radio, etc. A room was constructed for lectures, with films and illustrative projections. At the same time, the origins of important scientific discoveries and inventions were illustrated by exhibits of historic items of original apparatus and machinery, and reproductions of

famous workshops and laboratories. Not least among the contributions to the rapidly growing popularity of the Museum was the special gallery for children, an enterprise peculiarly personal to Lyons, who had the co-operation of his family in its design. Erected in the basement of the building, it exhibited, by means of attractively illuminated pictorial models, the discovery by mankind, and the development through the ages, of the means of using the resources of nature for man's comfort, industry and transport. It was certainly a source of pleasure to Lyons to see how the children of London, and especially those whose other privileges were few, flocked to the Museum in their holidays, to receive its educational influence unawares. By the time of his retirement in 1933 at the age of sixty-nine, after successive renewals of his tenure beyond the normal limit, he could reflect with satisfaction that the museum, at one time little known, had so established its popularity that the annual number of visitors had risen from 450,000 in 1921, the first complete year of his Directorship, to more than 1,240,000 in 1932, the last complete year before he retired. He had had the satisfaction of seeing the first third of the projected new building completed, and of participating in its opening, in 1928, by the King and Queen. In 1926 he had received the honour of knighthood.

In 1935, two years after he retired from the Directorship, Lyons was invited by the President of the Board of Education to become Chairman of the Advisory Council of the Museum in succession to Sir Richard Glazebrook.

In 1928 Lyons was elected Foreign Secretary of the Royal Society in succession to Sir Richard Glazebrook. The choice was an obvious and appropriate one, in view of his many friendships and professional contacts with men of science in other countries, and his already active concern with the International Research organization; but he was not to retain the position long, for, in the following year, the Treasurership of the Society became vacant, with the retirement of Sir David Prain, and the possibility of Lyons undertaking this more onerous and important responsibility came under discussion among his fellow Officers. He had given us no hint of an interest in that direction, and I remember that we had some doubt of his willingness to accept such an additional load. We were glad to find him willing to be proposed, and it was only long afterwards, years after his term of office had ended, that I learned that the Treasurership of the Royal Society had, in fact, been for him a cherished ambition long before he had any expectation of attaining it. He was duly elected, and the choice was, from every point of view, a most fortunate one. Lyons himself evidently enjoyed the opportunity of an intimate acquaintance with the Royal Society's affairs, and responded to it with an enthusiastic loyalty and an affectionate interest in everything which concerned the Society, which grew with the years and remained with him as a central motive to the end of his life. The Society found in him a Treasurer who brought to his duties a reforming zeal, aptly blended with a respect for tradition and a sympathetic understanding. Lyons's predecessors had been in office in years which included the years of the war and the decade immediately following. There had been a proper instinct to conserve resources during the war, and the end of it had found the Society with big arrears of

scientific obligation, particularly in the matter of publication. Some of the big new trust funds, which had come to the Society from 1919 onwards for the support of research, had been little used as yet except to make good such arrears. On the other hand, the impossibility of getting maintenance work done during the war, and the reluctance to spend on it in the period of financial uncertainty which followed, had left the ordinary services and amenities of the Society's rooms at Burlington House with a minimum of attention for many years. Its decorations were dingy and depressing, its heating and lighting systems were archaic, its electric wiring was a source of anxiety and even danger at every Soirée, its sanitation was mid-Victorian. Lyons came in just at the right time. It had become clear that there were many things which would have to be done, but that the undertaking would require the whole-hearted co-operation of a Treasurer who would regard the effective use of the Society's income as a proper part of his responsibility, as well as the safeguarding of its capital funds. His advent was, indeed, like a fresh breeze through the stuffy conservatism, which so readily becomes the prevailing atmosphere of an ancient Society with a permanent staff devoted to its traditions. 'Of course these things have got to be done', I remember Lyons saying to me at an early stage, 'and if the money for them is not there, we have just got to find it.' He told me, perhaps on the same occasion, that Kitchener, who surely knew the man to be trusted, had advised him that, when he knew a thing to be necessary, he should 'go and take it, and ask for approval afterwards'.

Ten years later, at the time of Lyons's retirement from the Treasurership, a colleague wrote of him as 'one who is universally recognized as the greatest authority since Hercules on Augean stables'. The jocular description was, of course, not meant to cast any serious reflexion on the state of affairs which Lyons encountered at the Royal Society, or at any other institution which was swept by his reforming zeal, and it must not be supposed that he wielded his broom recklessly, or with any lack of consideration. He just set to work steadily, with quiet industry and genial humour, to get tidiness and efficiency into a mechanism which had grown piecemeal and without systematic plan, and to see that things were done which had fallen badly into arrears through vague and timorous postponements. After a few years, without fuss and with a minimum of disturbance, the Society found that it possessed a new central heating system which produced warmth, that the rooms had been rewired for all the varieties of lighting and power current for which any occasion called, that fittings had been provided which would give a reasonable standard of illumination, that the main library had been refloored, and that the decoration and furnishing of the rooms were receiving progressive attention.

Lyons was equally alert and ready for action as a Treasurer exercising his primary responsibility for the maintenance of the funds under his charge. Those who were members of the Council in 1931–1932 will not have forgotten his quiet but characteristically prompt and effective intervention in the matter of the Society's large holding of the 5 per cent War Loan. Disquieted by the possibility of a conversion of this loan he consulted the Society's newly nominated

firm of brokers, and, with their confirmation of his doubts and the consent of the other Officers, he obtained the approval of Council by telegraph and telephone to an immediate transfer into long-dated 4 per cent securities giving an approximately equivalent yield. The foreseen conversion came on the day after he had completed the transaction, and the next Council meeting witnessed the unusual response of a round of applause to what was, on the face of it, a formal report by the Treasurer. Another matter which early claimed his attention was a review, in consultation with the professional auditors, of all the Society's methods of keeping its accounts. The result was a new and coherent plan, which included the placing of all accountancy work in the hands of one suitably qualified member of the staff, and a revision of the form in which the accounts were presented to the Society. He seemed always to be considering, indeed, what could next be done to increase the efficiency of the Society in the discharge of its functions, the interest of the Fellows in its activities, and their satisfaction in the use of its resources. As his activities began to bear fruit, however, he seemed to feel the need of a further outlet for his reforming energy. I remember well the occasion, in 1931, when he told me that, having attended to the matters which seemed most urgent at the Royal Society, he proposed 'to have a go at the Athenaeum now, and to see whether we can't do something there'; and Lord Macmillan has recorded (*The Times*, 11 August 1944) that 'it was not long before he succeeded in effecting improvements in every detail of its management'.

Lyons's interest in the Royal Society's administrative problems, and in the effect of its Statutes on these and on the character of the Society, grew steadily with his day to day contact with its affairs. He thought that the general body of the Fellows ought to know more of its general activities, and to be interested in these as well as in the scientific communications which the Society received and published. He accordingly welcomed the innovation made in August 1937, on a suggestion made by Mr Udney Yule, of printing and circulating to the Fellows *Occasional Notices* of the Society's doings. The first number struck him as meagre, and with his friend Sir Albert Seward he took up the question of providing additional material of interest; this led to the appearance of the second number in a substantially enlarged form. It was settled that the future numbers should appear twice a year, in April and October, and, as the scope of the effort extended and came to embrace, in particular, notes on various matters bearing on the past history of the Society, the originally slender and formal *Occasional Notes* was transformed into *Notes and Records*, with Lyons as editor and steady contributor, until war-time paper shortage caused a suspension of the issue. Meanwhile, with the greater freedom which came to him on his retirement from the Science Museum in 1933, but with apparently undiminished eagerness to be usefully busy, he began to raise the question of a new edition of the *Record of the Royal Society*, the last edition having been published in 1912 under the editorship of Sir A. Geikie. A Committee was appointed in 1935 to undertake the revision, with Lyons as Chairman; and no disrespect to the other members was implied by the statement by the President,

the late Sir William Bragg, in the introductory note to the new *Record* when it appeared in 1940, that the labour of its preparation had 'fallen in the main on the Treasurer, Sir Henry Lyons'. This was, of course, a matter of common knowledge, and was recognized as only one example of Lyons's readiness, when colleagues were unable to keep pace with his eager industry, to do the essential part of a job by his own energy and initiative, without asking for any corresponding share of the credit for what had been achieved.

His work as Treasurer, as Editor of *Notes and Records*, and as Chairman of the Record Revision Committee, had given Lyons a steadily growing interest in the Society's history, and especially in the history of its administration under its Charters, of the changes of its Statutes with successive revisions, and of the corresponding changes in the structure and the activities of the Society. He began to think of writing a new History of the Society, particularly from this administrative angle, and took the project in hand seriously as soon as he retired from the Treasurership in 1939. His journal records the beginning of a first rough draft in January 1940, and the work was completed and accepted by the Cambridge University Press in the latter part of 1942. His dedication of it to the President and Fellows of the Royal Society was gladly accepted by the Council. War-time conditions, and especially paper shortage, sadly delayed the publication after he had passed the final proofs, and it was still only in near prospect when death deprived him of the joy of seeing, in its finished form, the last tribute of his devotion to the Society which he had served so long and so well.

Space is not available for any attempt at a complete record of all the various services which Lyons gave so willingly to so many departments of scientific activity. He served the Geographical Society as Honorary Secretary, the Royal Meteorological Society as President and the Geological and Astronomical Societies as a member of their Councils. In numerous other directions his experience and advice were sought, and readily given, in the service of this country and of its public collections. Mention may be made of his chairmanship of the Committee, appointed in 1934 by the Minister of Health and the Secretary of State for Scotland, to advise on the Inland Water Survey of Great Britain, and of his service as a trustee of the National Portrait Gallery and of Sir John Soane's Museum. Further brief mention should also be made of his steady and effective work on behalf of the international organization of science. As Secretary of the International Union of Geodesy and Geophysics and a Royal Society representative, he was active on the International Research Council, and was largely instrumental in bringing about such a change of its title as would make it clear that its proper function was to co-ordinate, and not to dictate or to control, the essentially independent activities of the separate Unions. It had thus become the 'International Council of Scientific Unions' before Lyons, in 1931, succeeded Sir Arthur Schuster as its General Secretary at the desire of the representatives of all the adhering countries. This involved a substantial addition to the responsibilities which he was already carrying, but he seemed to take it, with all the others, in the easy stride of his efficiency.

A condensed record of Henry Lyons's career, filled with so close a succession of duties, enterprises and achievements, might give, to a reader who had not the privilege of knowing him, an erroneous idea of his personality. There was nothing in Lyons of the martinet, or the lean enthusiast. He was, indeed, punctilious and precise about official duties, dealing quickly and easily with matters of business, and his manner had a certain soldierly directness; but there was no hustle, no outward sign of the energy which was so effective, and no trace of pomposity. He was always willing to disregard formality or tradition if it hindered effective action, genial and accessible, ready to listen to the ideas of others and especially of younger colleagues, and generous in encouraging juniors to take responsibility. With his fresh complexion, his blue eyes lit with a friendly humour and his rather full bodily habit, he might easily have been taken by a superficial observer for a man who, apart from official duties, just enjoyed the good things of life and took them with an easy good fellowship. The description would, indeed, have been true in a literal, but very far from it in a conventional sense. Lyons did enjoy the good things of life, not excluding material comforts and good food; but good work done with a quiet efficiency certainly took first place in his conception of the good things which life could offer. He loved good fellowship, too, having personal qualities which made him welcome and happy in any society or club circle; but he seemed to find his greatest pleasure in giving time, thought and effort to ensure that his fellow members, whether of scientific society or club, could enjoy to the full the proper privileges of their membership.

One had to discover in Lyons the faculties which his modesty kept hidden. When he was first mentioned as a possible Treasurer of the Royal Society, I remember a colleague's opinion: 'Lyons', he said, 'is good natured and easy going, but we have no real reason to suppose that would make a good treasurer'. Fortunately we took the chance; and we were soon regarding it as a matter of course that, whenever a question touched upon the Society's investments, or the position of any of its funds, a familiar, slim notebook would appear from the Treasurer's breast-pocket, and all relevant information, fully up to date, would be at disposal without any fuss. He was just as reticent about his scientific achievements. I suspect that there are items in the above record which will come as a surprise to the majority of those who knew him, and that few, indeed, outside the small circle of those who made direct contacts with his work, have been aware of the range and the importance of what he himself did in science. I never heard him give a formal lecture, but in his semi-public statements, at Council board or in Society meeting, he seemed to be hampered by shyness, breaking the flow of his words with hesitation and a nervous cough, so that he was less effective under such conditions than in discussions with a smaller circle. In private he was a very attractive talker, drawing easily on a memory stored with manifold experiences, and enlivening the tale with a robust and racy humour. I often thought that he had more material than most men for a good book of reminiscences; and the privilege of seeing the journal, which he kept during the latter half of his life, has confirmed me in that opinion. I am sure,

however, that it would not have occurred to Lyons that a record of his own encounters and experiences might awaken general interest. The years which were left to him, after his retirement from other duties, he gave to his administrative history of the Royal Society.

The story of these last years, in which the history was written, has an epic quality of its own. On 17 June 1940 Lyons's journal records that he began a 'fair draft' of the earlier chapters. In one of the earliest of the raids, in September of that year, his house was wrecked, and he had a narrow escape from destruction with it. For years he had suffered with an arthritis of the hip, which had progressively limited his mobility, though with remarkably little effect on his general vigour or his enjoyment of life. This disability did not ease the problem of his removal from the ruins of his home. Lady Lyons and he sought harbourage in two hotels in succession in the West End of London. Bombing drove them out of each of these in turn, and finally, much against his inclination, into the country, where, between September 1940 and May 1943, they were in five different temporary homes. He was well into the second half of his eighth decade, with every excuse to take things easily; yet, far as he was from libraries, having with him for the purpose only 'between fifteen and twenty books and a good many notes and memoranda', he continued to work steadily at the history, his last labour of love. From time to time he managed to get up to London, and one would see him at the club, every time more crippled, but with cheerfulness, energy and gusto hardly abated. 'First rate above the waist', he would reply to enquiry, 'but rotten below it'. At last he acquired in Great Missenden a house with a charming garden and orchard, and settled there to read his proofs, and then to wait for the publication of his book. A fall, however, was followed by progressive heart failure and he died on 10 August of this year, brave and cheerful still in his last conscious moments. Lady Lyons survives him, with one son, Lieutenant-Colonel A. P. C. Lyons, SHAEF (Civil Affairs), one daughter, Margery, widow of the late Lieutenant Terence Gates, R.A., and two grandchildren.

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H. H. Dale

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